

1966 OPERATING SUMMARY

FORT WILLIAM

water pollution control plant

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ONTARIO WATER RESOURCES COMMISSION

Division of Plant Operations

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ONTARIO WATER RESOURCES COMMISSION

OFFICE OF THE GENERAL MANAGER

Members of the Fort William Local Advisory Committee,
City of Fort William.

Gentlemen:

We are pleased to submit to you the 1966 Operating Summary for the Fort William Water Pollution Control Plant, OWRC Project Nos. 60-S-50, 61-S-91 and 64-S-173.

It is hoped that our joint participation in efforts to combat water pollution will have even more success in the coming year.

Yours very truly,

A handwritten signature in dark ink, appearing to read "D. S. Caverly", is written over the typed name.

D. S. Caverly,
General Manager.



ONTARIO WATER RESOURCES COMMISSION

801 BAY STREET

TORONTO 5

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VICE-CHAIRMAN

D. S. CAVERLY
GENERAL MANAGER

W. S. MACDONNELL
COMMISSION SECRETARY

General Manager,
Ontario Water Resources Commission.

Dear Sir:

I am happy to present you with the 1966 Operating Summary for the Fort William Water Pollution Control Plant, OWRC Project Nos. 60-S-50, 61-S-91 and 64-S-173.

The report offers a concise summary of operating data for the year and comparisons with previous years where these are applicable and significant.

Yours very truly,

A handwritten signature in cursive script, reading "B. C. Palmer".

B. C. Palmer, P. Eng.,
Director,
Division of Plant Operations.

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FOREWORD

● This operating summary contains complete information on the management of the project during 1966. It contains a concise review of the year's plant operation, significant financial details, and a visual presentation in graphs and charts of technical performance.

The information will be of value to interested parties in assessing the adequacy of the project at this time and its ability to meet future requirements.

The report is the result of co-operation by several groups within the Division of Plant Operations. These include the statistics section and the technical publications section. The Division of Finance and the draughting section of the Division of Sanitary Engineering were also closely associated with its publication.

The Regional Operations Engineer, however, has had the primary responsibility for the content, and will be happy to answer any questions regarding it.

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FORT WILLIAM

water pollution control plant

operated for

THE CITY OF FORT WILLIAM

by the

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Regional Supervisor:	A. C. Beattie
Operations Engineer:	A. Clark

801 Bay Street Toronto 5

'66 REVIEW

During 1966, 995,52 mg of raw sewage were treated. This was an increase of 48% over 1965, but still considerably below plant capacity.

The cost of treatment was \$53,980.73 or \$54.22 per million gallons, a unit cost reduction of 46%. This unit cost will continue to decrease as the flow to the plant increases.

Flow to the plant was less than 3 mgd during the winter months, and approximately 5 mgd during spring runoff. It is expected that the newly constructed Kam Interceptor Sewer will increase flows to the plant.

The plant was staffed by a chief operator, a mechanic and three operators in the early part of the year. Supervision was eight hours per day, seven days per week. However, it was found necessary to increase supervision to 16 hours per day at the year end. Operation of the Brunswick Avenue Sewage Pumping station is supervised by plant staff.

Routine inspections were made by the operations engineer and his assistant, while the maintenance section made an inspection in October 1966. The following month, the maintenance section conducted extensive pump tests at Brunswick Avenue Sewage Pumping station.

PROJECT COSTS

NET CAPITAL COST:

60-S-50 (Final)	\$1,336,345.25	
61-S-91 (Estimated)	<u>2,585,659.73</u>	\$3,922,004.98

DEDUCT - Portion financed by CMHC

60-S-50 (Final)	855,626.69	
61-S-91 (Estimated)	<u>1,722,029.58</u>	2,577,656.27

Long Term Debt to OWRC

60-S-50	480,718.56	
61-S-91	<u>863,630.15</u>	
		<u>\$1,344,348.71</u>

Debt Retirement Balance at Credit (Sinking Fund) December 31, 1966

60-S-50	\$ 41,947.09	
61-S-91	<u>36,778.49</u>	\$ <u>78,725.58</u>

	<u>60-S-50</u>	<u>61-S-91</u>	<u>Total</u>
Net Operating	\$ 839.63	\$ 53,980.73	\$ 54,820.36
Debt Retirement	9,701.00	17,513.00	27,214.00
Reserve	8,669.23	15,734.92	24,404.15
Interest Charged	<u>27,046.34</u>	<u>48,559.83</u>	<u>75,606.17</u>
Total	\$ <u>46,256.20</u>	\$ <u>135,788.48</u>	\$ <u>182,044.68</u>

RESERVE ACCOUNT

	<u>60-S-50</u>	<u>61-S-91</u>	<u>Total</u>
Balance at Jan. 1, 1966	\$31,673.09	\$16,410.87	\$48,083.96
Deposited by Municipality	8,669.23	15,734.92	24,404.15
Interest Earned	1,942.84	1,038.82	2,981.66
	<hr/>	<hr/>	<hr/>
	\$42,285.16	\$33,184.61	\$75,469.77
Less Expenditures	-	5,140.33	5,140.33
	<hr/>	<hr/>	<hr/>
Balance at December 31, 1966	<u>\$42,285.16</u>	<u>\$28,044.28</u>	<u>\$70,329.44</u>

Following is a summary of costs for Project No. 64-S-173
(Brunswick Avenue sewage pumping station):

NET CAPITAL COST (Estimated)	
Long Term Debt to OWRC	<u>\$28,502.68</u>
Debt Retirement Balance at Credit (Sinking Fund) December 31, 1966	\$ <u>842.00</u>
Net Operating	\$ 476.21
Debt Retirement	573.00
Reserve	191.00
Interest Charged	<u>1,563.34</u>
TOTAL	<u>\$2,803.55</u>

RESERVE ACCOUNT

Balance at January 1, 1966	\$ 79.67
Deposited by Municipality	191.00
Interest Earned	<u>8.79</u>
Less Expenditures	-
Balance at December 31, 1966	<u>\$ 279.46</u>

MONTHLY OPERATING COSTS

MONTH	TOTAL EXPENDITURE	PAYROLL	CASUAL PAYROLL	FUEL	POWER	CHEMICAL	GENERAL SUPPLIES	EQUIPMENT	REPAIRS & MAINTENANCE	* SUNDRY	WATER
JAN	3495.99	1868.15	142.91	597.66	563.15		29.97	236.49	47.89	9.77	
FEB	10150.95	1829.58		472.58	704.83	9.11	137.91	369.85	46.75	6580.34	
MARCH	447.16	2188.98		335.33	700.52	50.76	488.38	(496.23)	88.20	(2980.78)	
APRIL	5314.93	3482.83		322.11	876.43		301.37		80.37	203.22	48.60
MAY	4524.82	2077.35		210.34	817.63	1029.00	119.89	90.43	52.45	127.73	
JUNE	4071.71	2231.48	152.28	147.45	809.66		260.20		333.33	137.31	
JULY	4436.53	1986.80	246.19	96.00	758.00	1029.00	75.54		113.41	82.99	48.60
AUG	3240.10	2130.95		96.00	686.40		61.66		126.15	138.94	
SEPT	4472.02	3221.56	174.95	96.00	767.78		108.84		11.35	91.54	
OCT	4721.80	2068.85	419.30	96.00	835.81		209.30		258.65	785.29	48.60
NOV	3663.12	1753.89	616.66	123.12	773.27		160.97	30.50	117.30	87.41	
DEC	5441.60	1111.29	653.31	294.98	885.46		232.93	13.40	48.65	2201.58	
TOTAL	53980.73	25951.71	2405.60	2887.57	9178.94	2117.87	2186.96	244.44	1324.50	7537.34	145.80

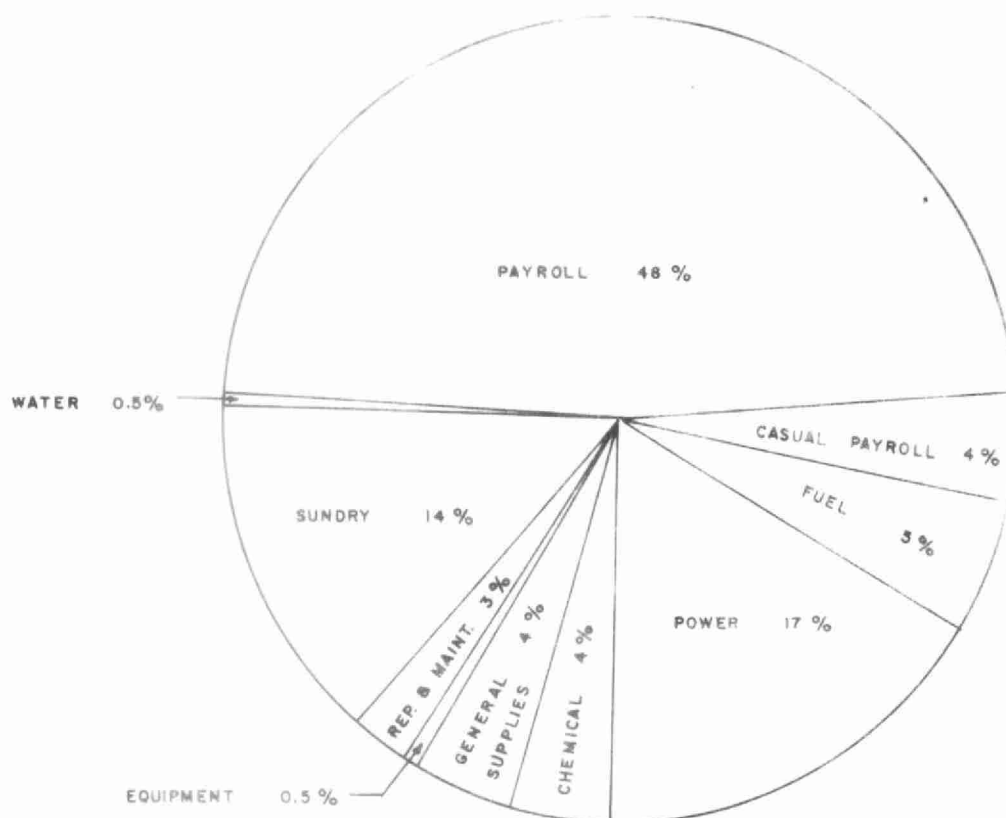
* SUNDRY INCLUDES SLUDGE HAULING COSTS WHICH WERE \$1922.40
BRACKETS INDICATE CREDIT

YEARLY OPERATING COSTS

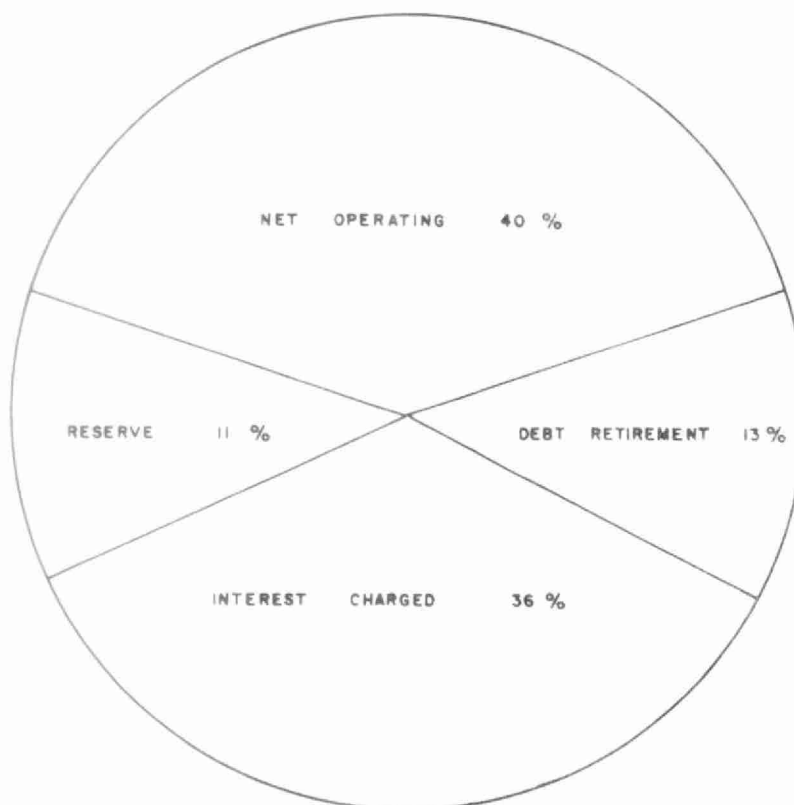
YEAR	M.G. TREATED	TOTAL COST	COST PER FAMILY PER YEAR	COST PER MILLION GALLONS	COST PER L.B. OF BOD REMOVED
1965	676.38	\$53523.57	* \$4.48	\$79.13	23 CENTS
1966	995.52	\$53980.73	\$4.45	\$54.22	16 CENTS

BASED ON ANNUAL POPULATION ESTIMATE AND 3.9 PERSONS PER FAMILY

1966 OPERATING COSTS



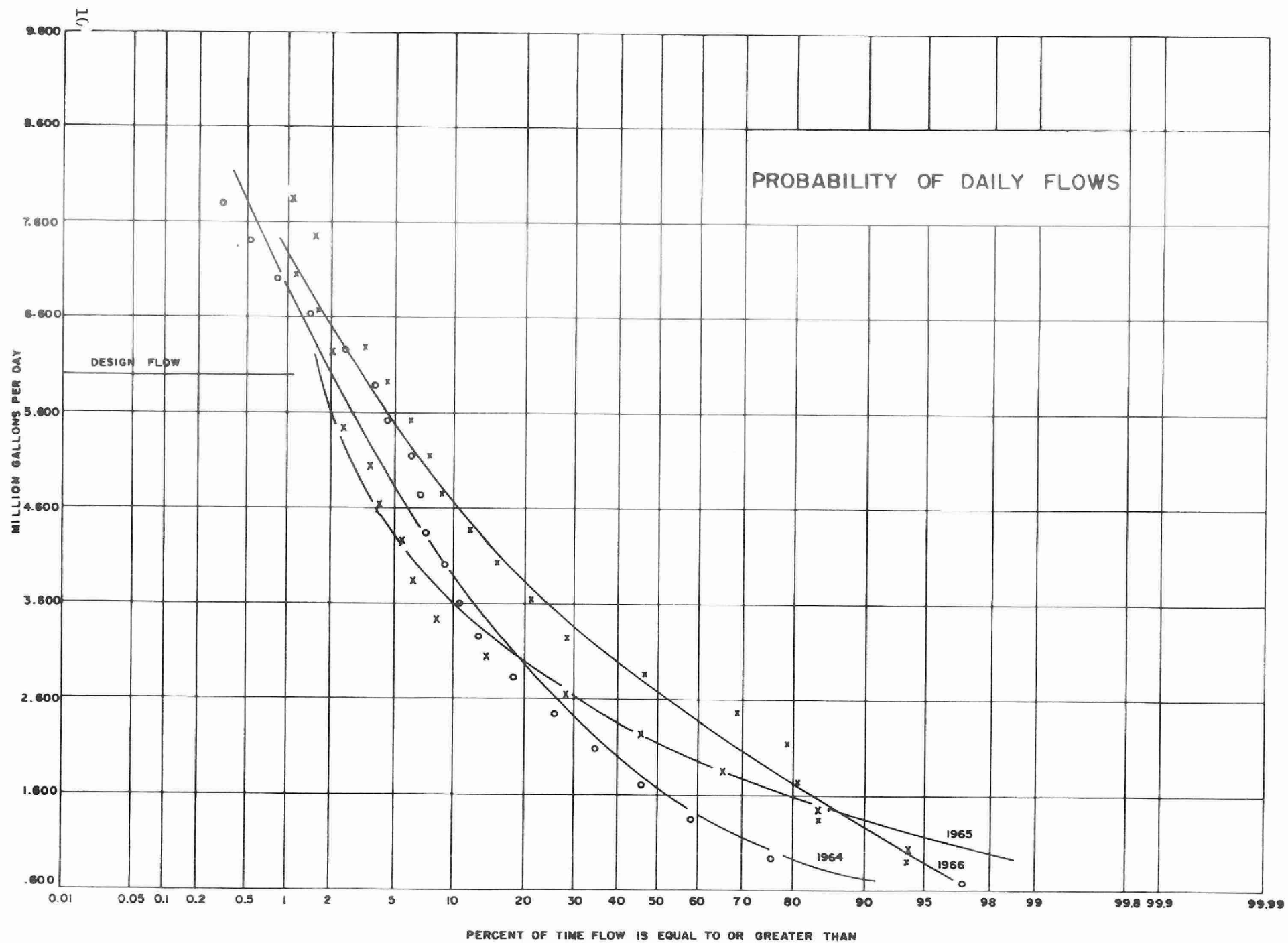
TOTAL ANNUAL COST (61-S-91 ONLY)

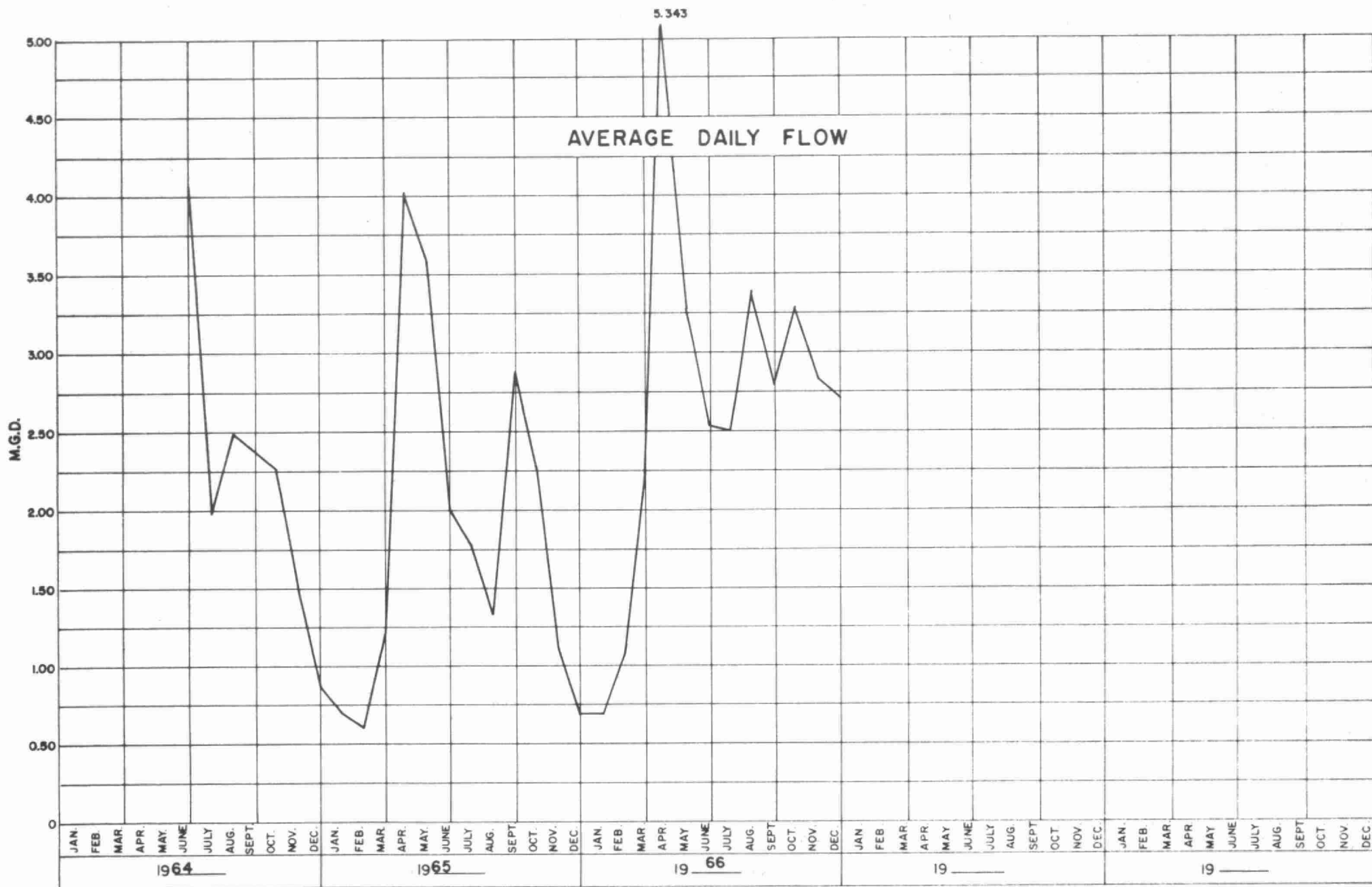


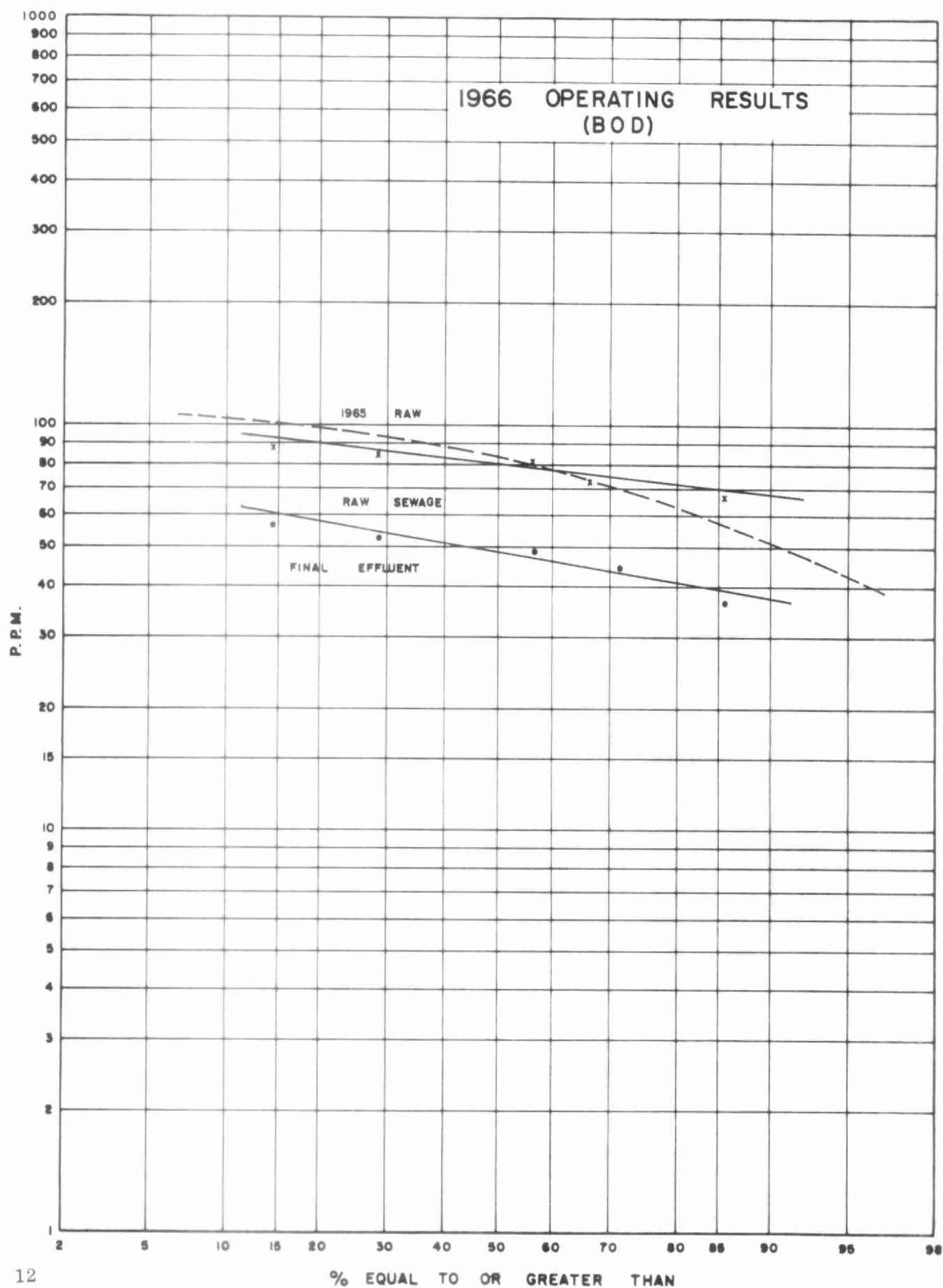
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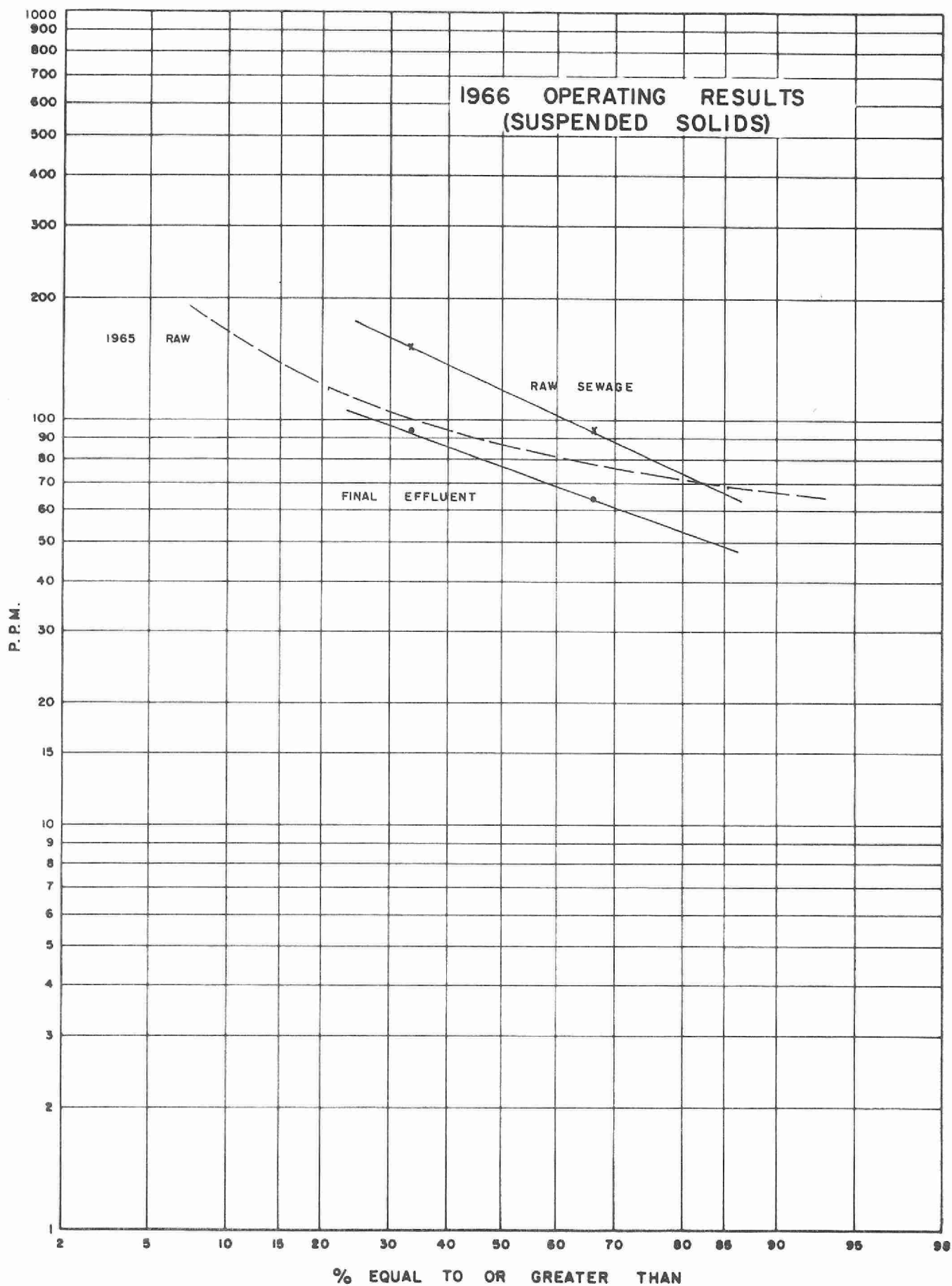
The average daily flow for 1966 was 2.73 mgd. This represents 45.5% of design capacity. The design capacity was exceeded 3.0% of the time, and this was during spring runoff.

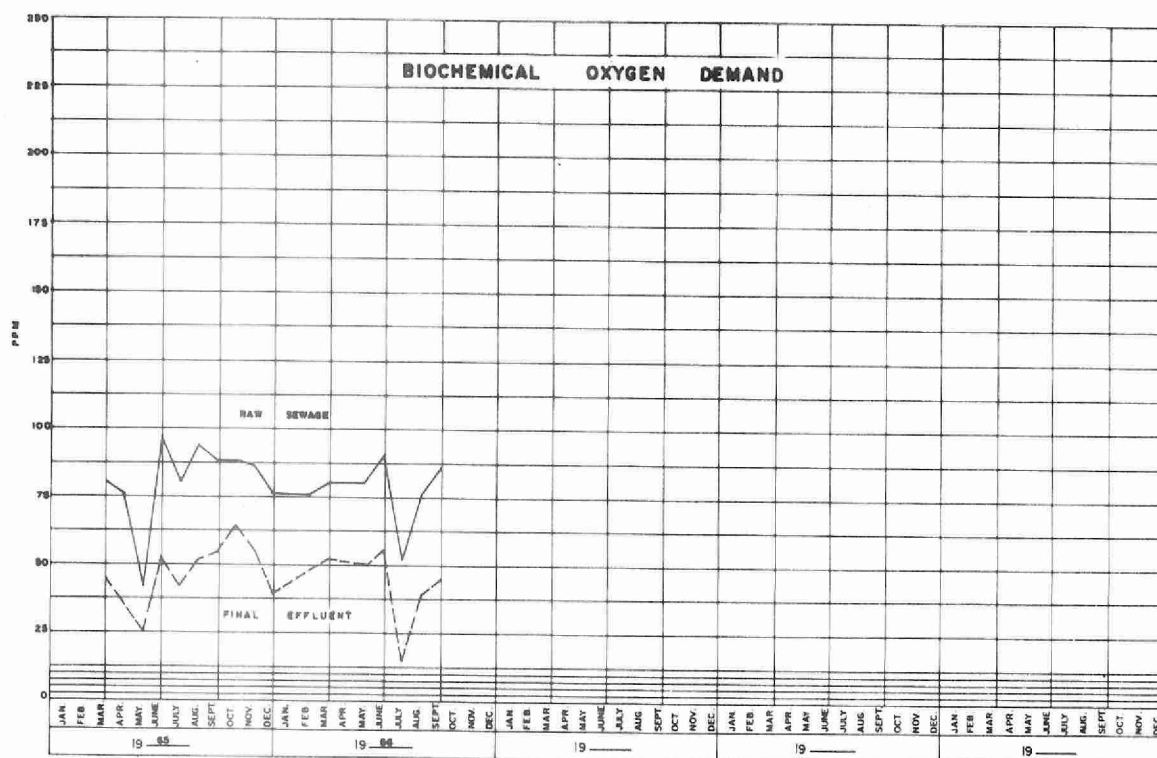
The Kam Interceptor Sewer was not completed in time to affect 1966 flows.



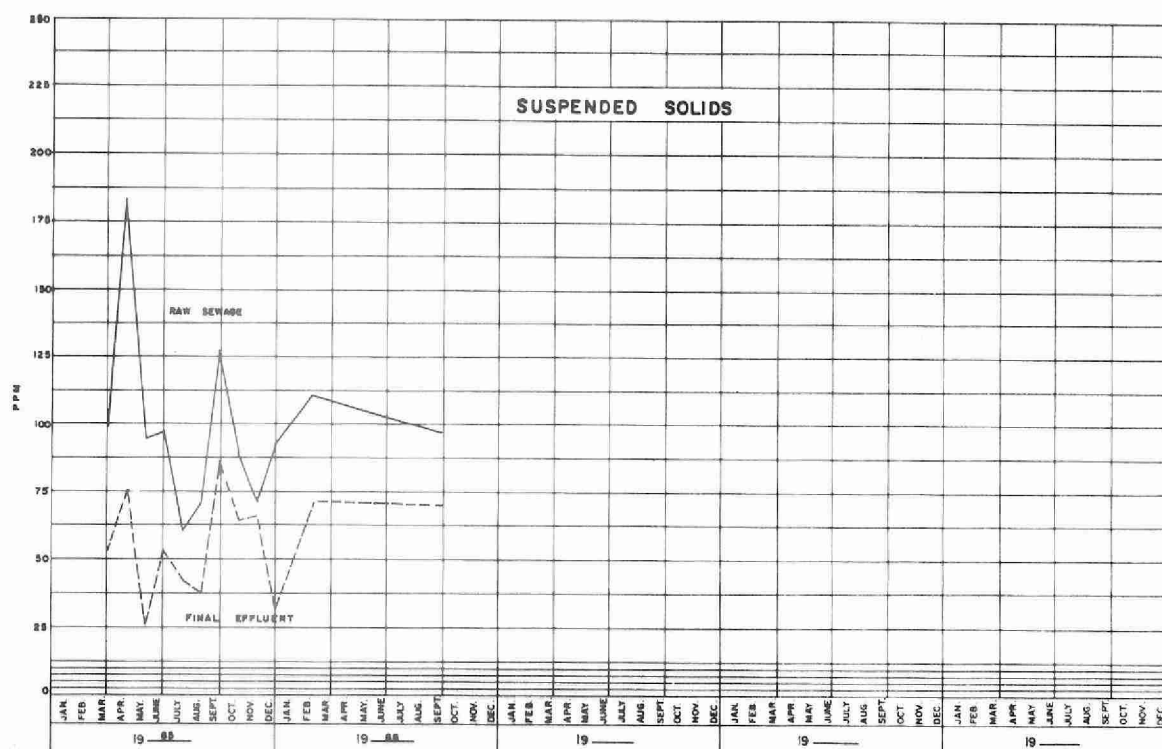








MONTHLY VARIATIONS



GRIT, B.O.D AND S.S. REMOVAL

MONTH	B. O. D.				S. S.				GRIT REMOVAL CU. FT.
	INFLUENT PPM.	EFFLUENT PPM.	% REDUCTION	TONS REMOVED	INFLUENT PPM.	EFFLUENT PPM.	% REDUCTION	TONS REMOVED	
JAN.				* 3.9				3.9	108
FEB.	76	48	37.0	4.4	110	70	36.0	6.2	216
MAR.	80	52	35.0	9.6				11.6	182
APR.	83	53		* 27.2				27.2	140
MAY	81	50	38.0	15.8				17.3	329
JUNE	90	56	37.5	12.9				12.9	336
JULY	52	14	73.0	14.8				13.2	357
AUG.	76	38	50.0	19.8				17.7	315
SEPT.	85	44	48.0	17.1	96	68	29.0	11.6	189
OCT.				* 17.3				17.3	119
NOV.				* 14.4				14.4	133
DEC.				* 14.2				14.2	224
TOTAL	-	-	-	169.2	-	-	-	* 169.2	2648
AVG.	77	43	44.0	14.1	103	69	33.0	* 14.1	221

* Average values used

COMMENTS

Percent removals are not high but are as expected with weak sewage. No laboratory results were available in the latter months of 1966 until the new chief operator had completed further training in laboratory procedures.

DIGESTER OPERATION

MONTH	SLUDGE TO DIGESTERS			SLUDGE FROM DIGESTERS			GAS PRODUCED 1000'S Cu. Ft.
	1000'S CU. FT.	% SOLIDS	% VOL. MAT.	1000'S CU. FT.	% SOLIDS	% VOL. MAT.	
JAN.	24.52	-	-	-	-	-	253.68
FEB.	23.40	1.98	1.38	-	14.22	5.20	261.86
MAR.	32.03	-	-	-	-	-	469.58
APR.	27.55	-	-	0.71	-	-	361.38
MAY	21.51	-	-	7.54	-	-	463.12
JUNE	52.56	-	-	-	-	-	406.10
JULY	25.61	-	-	-	-	-	584.74
AUG.	47.18	-	-	-	-	-	562.88
SEPT.	48.10	3.08	-	11.99	14.50	-	480.46
OCT.	48.32	-	-	5.83	-	-	513.95
NOV.	44.06	-	-	12.96	-	-	404.86
DEC.	90.46	-	-	26.89	-	-	472.91
TOTAL	485.30	-	-	65.92	-	-	5235.52
AVG.	40.44	2.53	1.38	5.49	14.36	5.20	436.29

COMMENTS

The total amount of sludge pumped to the digesters was 485,300 cubic feet. It was found necessary to haul liquid digested sludge regularly from September to year end. A total of 65,920 cubic feet was removed by tank truck. Gas production improved 500% over 1965, but is still not produced in sufficient quantities to be used as heating fuel full time.

CHLORINATION

MONTH	PLANT FLOW (MG)	POUNDS CHLORINE	DOSAGE RATE (PPM)
JANUARY	22.88	876	3.83
FEBRUARY	31.13	845	2.71
MARCH	68.39	1118	1.63
APRIL	160.30	1614	1.01
MAY	101.70	3881	3.82
JUNE	75.99	4711	6.20
JULY	77.86	4363	5.60
AUGUST	104.28	4832	4.63
SEPTEMBER	83.25	4738	5.69
OCTOBER	101.90	4488	4.40
NOVEMBER	84.56	1067	1.26
DECEMBER	83.28	770	0.92
TOTAL	995.52	33303	-
AVERAGE	82.96	2775	3.34

COMMENTS

Plant effluent was chlorinated from May 15 to October 30 and a 0.5 ppm residual obtained. However, raw sewage was chlorinated on a year-round basis due to the low flows and long detention times.

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CONCLUSIONS

Although the plant was still being operated considerably below design capacity, it was run efficiently and unit costs were substantially reduced from 1965. The addition of the Kam Interceptor Sewer to the system will increase plant flows in 1967 resulting in a higher overall cost but reduced unit costs.

Date Due

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